View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Elsevier - Publisher Connector

Wood anatomy and taxonomy of members of the genus *Ocimum* L. (Lamiaceae) and a variety in Nigeria

O.T. Oladipo, A.O. Oyaniran
Department of Botany, Obafemi Awolowo University, Ile-Ife, Nigeria

Wood anatomy of three species of *Ocimum* Linn. and a variety namely *O. basilicum*, *O. canum*, *O. gratissimum* and *O.basilicum* var. *purpurasens* found in Ile-Ife Nigeria was investigated. This was done with a view to discovering additional characters that may be diagnostic and important in the identification and classification of the members of the genus. Anatomical procedures were carried out on the matured stem of each species after the collection of the sample from the field. Wood samples were sectioned into Transverse, Tangential longitudinal and Radial longitudinal sections with the aid of Sledge microtome. Safranin O and Alcian blue were used for staining. Small quantity of Potassium dichromate and 10% Nitric acid were used for maceration. Permanent slides were prepared and microscopic observation was done under different objective lenses to view vessel elements, parenchyma cells, libriform fibre, and rays of various shapes. The length and diameter of vessels, fibre length and height of ray cells were taken using ocular micrometer at × 40 objective lens and Statistical analysis was carried out using one way analysis of variance (ANOVA) with Mean separation using Duncan Multiple Range Test (DMRT). Intra generic wood anatomical characters of note in the genus include- diffuse vessel elements, presence of uniseriate and biseriate rays, opposite inter vascular pitting and oblique vessel end walls. multiseriate rays are diagnostic of *O. gratissimum*. Overall results show high level relatedness between O.basilicum *var.purpurascens* and *O. gratissimum* as against *O. basilicum*.

doi:10.1016/j.sajb.2013.02.053

A survey of morphological and anatomical characters in the subtribe Phymaspermineae (Anthemideae, Asteraceae)

A.K. Ruiters[a], A.R. Magee[a,b], P.M. Tilney[a], B.-E. Van Wyk[a]
[a]*Department of Botany and Plant Biotechnology, University of Johannesburg, P.O. Box 524, Auckland Park 2006, Johannesburg, South Africa*
[b]*South African National Biodiversity Institute, Compton Herbarium, Private Bag X7, Claremont 7735, South Africa*

The tribe Anthemideae of Asteraceae has been recently revised to now include a new subtribe Phymasperminae. This modification accommodates new molecular data. The earliest diverging lineages of the tribe have their centres within southern Africa and it is therefore thought that the Anthemideae have originated in this region. Phymasperminae which is one of six of these lineages, comprises three genera: *Eumorphia* (6 spp.), *Gymnopentzia* (1 sp.) and *Phymaspermum* (ca. 19 spp.). Generic and species delimitations and relationships within the subtribe are unclear. This study attempts to divide the main genus *Phymaspermum* into more manageable informal groups as well as to determine the relationships between these species and the species of *Eumorphia* and *Gymnopentzia*. Five groups around *P. acerosum*, *P. athanasioides*, *P. parvifolium*, *P. erubescens* and *P. scoparia* were identified according to their habit and floral morphology. The results of a detailed morphological and anatomical study (using light and scanning electron microscopy) of subtribe Phymasperminae is presented. The shape of the involucre, the number and shape of the bracts, the presence and number of paleae as well as the number of florets were found to be taxonomically useful in distinguishing between species and species groups. Several fruit characters were also found to be taxonomically useful, such as the number of ribs, the presence of a pappus, myxogenic trichomes and resin canals.

doi:10.1016/j.sajb.2013.02.054

A phylogenetic classification of Asphodelaceae subfamily Alooideae

J.S. Boatwright[a], J.C. Manning[b], B.H. Daru[c], O. Maurin[c], M. Van der Bank[c]
[a]*Department of Biodiversity and Conservation Biology, University of the Western Cape, Private Bag X17, Belville 7535, Cape Town, South Africa*
[b]*Compton Herbarium, South African National Biodiversity Institute, Private Bag X7, Claremont 7735, Cape Town, South Africa*
[c]*Department of Botany and Plant Biotechnology, University of Johannesburg, P.O. Box 524, Auckland Park 2006, Johannesburg, South Africa*

The family Asphodelaceae arguably contains some of the best known horticultural and medicinal plant species in the world. Subfamily Alooideae currently comprises five genera mostly centred within southern Africa, with only *Aloe* extending to Madagascar, Arabia, the Canaries and the Comoros. The genera are largely diagnosed by overlapping suites of homoplasious morphological character states. Results from the analysis of plastid (*rbcLa*, *matK*, *trnH-psbA* and the *trnL* intron) and nuclear (ITS1) sequence datasets in a large sampling of species are presented. Only the two small genera *Astroloba* and *Gasteria* are recovered as well-supported monophyletic lineages. *Haworthia*, as also indicated by previous studies, is clearly polyphyletic as presently circumscribed, with the species distributed among three clades corresponding to the current subgenera. *Aloe* (with the inclusion of *Chortolirion*) segregates into five, well-supported monophyletic lineages corresponding respectively to sections *Dracoaloae*, *Kumara*, *Macrifoliae*, *Aristatae*, and the remainder of the genus. Sect *Aristatae* is strongly supported as a member of a clade comprising *Astroloba* + *Haworthia* subg. *Robustipedunculares*. The relationships among the remaining four *Aloe* lineages are, however, poorly resolved and, although indicative that *Aloe* may be polyphyletic, not conclusive at this stage. Significant generic recircumscriptions are indicated by the results and possible options are examined. Although morphological and molecular data are both consistent with expansion of the genus *Aloe* to include all members of Alooideae, thereby returning to Salm-Dyck's (1836–63) conception of the genus, we propose a more conservative and likely more generally acceptable option. *Astroloba* and *Gasteria* are retained as currently circumscribed; *Haworthia* is split into three genera corresponding with the current subgenera; and *Aloe* sect. *Aristatae* is now treated as a new genus. The four remaining lineages in *Aloe* are treated as subgenera. This treatment renders all seven genera arguably monophyletic in available molecular analyses, with minimal nomenclatural disruption.

doi:10.1016/j.sajb.2013.02.055

The split-tongue Ascleps and their cousins - an overview

S.P. Bester[a,b,c], A. Nicholas[c]
[a]*South African National Biodiversity Institute, Private Bag X101, Pretoria 0001 South Africa*
[b]*School of Environmental Sciences and Development, North-West University, Private Bag X6001, Potchefstroom 2520, South Africa*
[c]*School of Biology and Conservation Science, University of KwaZulu-Natal, Private Bag X54001, Durban 4000, South Africa*

The last full revision of *Schizoglossum sensu lato* was done by N.E. Brown in the Flora of tropical Africa (1902–1903) and Flora Capensis